

LEPIDOPTERA ON COLONSAY AND ORONSAY, INNER HEBRIDESM.R. YOUNG¹, M.W. HARPER² and I. CHRISTIE³¹ *Zoology Dept., Aberdeen University, Tillydrone Avenue, Aberdeen AB9 2TN*² *Cherry Orchard, Bullen, Ledbury, Herefordshire*³ *Gartlea, Caldervan, by Alexandria, Dumbartonshire G83 9LX*

STUDY of the flora and fauna of islands provides much exciting ecological information, which can then be used to suggest and test ideas of wide interest. Such basic questions as how communities of species assemble and persist, how effective physical barriers are in preventing dispersal, or how new arrivals influence existing communities, find their best solution in island studies. Unfortunately there are very few instances where the flora and fauna are well enough known to provide sufficiently complete data and so the Hebrides, which are already better known than more remote islands, deserve our further attention. More appealing reasons for such studies lie in the beauty of the islands and the interesting appearance of some of the isolated populations of moths. In 1989 we visited Colonsay and Oronsay in July and August and this account includes records of Lepidoptera which we made, which are additional to those already summarised by Wormell in 1983.

Colonsay and Oronsay offer many points of interest. They have a range of habitat types, including some of unique value; are sufficiently small, at around 16 x 5km, to be easily covered; are already reasonably well studied, so that the insects, the other animals and the plants can be compared; and are placed in an interesting position near Mull, Jura and the Scottish mainland.

Study of Boyd and Bowes (1983) and discussion with Wormell before arrival, suggested that we could expect to find the full range of Hebridean habitats; that the Lepidoptera had already received enough attention to show that some exciting species were present; but that some major groups, such as leaf miners, were still very under-recorded. The habitats include excellent examples of certain types. Dunes are present both as very extensive dry stable ridges, as at Ardskenish, and with wide damp dune slacks, as at the eastern end of Oronsay. Behind the shore at Machrins, Kiloran and Balnahard is machair grassland and, whereas it is mostly heavily grazed, at Balnahard a new fencing scheme is restricting this for the benefit of the flowers. The inner part of the island has much damp acid moorland, with some beautiful lochans such as Loch Cholla, but there is also farmland interspersed with marshland, which is rather unlike that of other islands. The marshes have luxuriant growths of purple loosestrife amongst the more usual meadow sweet and smaller plants. The woodlands include the sub-tropical plantings around Colonsay house in the sheltered centre of the island, but of especial value are the unique oak woodlands on the north-east coast at Coille Mhor and Coille Beag. These are the most celebrated of Colonsay's habitats, well known for their colony of Purple Hairstreak (*Quercusia quercus*) butterflies, and are supposed to be genuine remnants of the original Hebridean woodland.

Wormell (1983) summarises what was then known of the Lepidoptera of Colonsay and Oronsay but has also produced a more up-to-date manuscript list. This runs to 297 species, including many Microlepidoptera recorded by Langmaid and Agassiz in 1978. Of special note from these lists are populations of Peacock (*Inachis io*), Small Copper (*Lycaena phlaeas*), Ringlet (*Aphantopus hyperanthus*) and Marsh Fritillary butterflies (*Eurodryas aurinia*), as well as the Purple Hairstreaks of Coille Mhor, as such species are otherwise mostly scarce or absent in the Hebrides. However, the Peacock has not been seen since 1987 and its status must now be doubtful. At Coille Mhor several interesting woodland species are found, including *Strophedra nitidana* on oak, and the Vapourer moth (*Orgyia antiqua*) which is polyphagous. Presumably either the newly hatched larvae of the Vapourer ballooned to Colonsay, or some stage was introduced accidentally by man, perhaps on some of the enormous numbers of plants and trees which have been introduced, especially around 1900. The woods around Colonsay House have abundant *Ypsolopha nemorella*, feeding on the honeysuckle, and other sparsely distributed species already found on the island are the sawfly feeding *Pammene populana*, and the loch margin species *Donacaula mucronellus*. A major puzzle is why no Burnet moths are found in what seems to be ideal conditions, but the same question could also be asked of Tiree and some other apparently suitable islands.

The current visit, by MWH and MRY in late July/early August and IC in early/mid August 1989, added 51 species to Wormell's manuscript list, 15 of which were also not recorded by Wormell (1983) from the other small islands of Coll, Rhum and Canna. However Inner Hebridean records are scattered in the literature and there have been some recent visits by lepidopterists to islands with no resultant published list and so it is not necessarily correct to claim these as wholly new. At some stage soon it will surely be desirable to collate and publish all records that are available for these islands.

The new records are listed in Table 1, with annotations where appropriate, and it can be seen that many are very common species, which have probably been merely overlooked or have not been considered worth recording previously (for example *Argyresthia goedartella* or *Xanthorhoe fluctuata*). However most past visits by lepidopterists have been earlier in the season and not all have combined the use of MV light traps with direct searching for adults, larvae and leaf mines.

As noted above, some groups of moths have been neglected before and the five new Stigmellids fall into this category. There seems no doubt that a visit in autumn could add many further species of leaf miner and, in view of the contention that Coille Mhor is an ancient wood, this could prove most interesting. This wood includes oak, birch, aspen, saw, rowan, ash and hazel, with associated rose and honeysuckle and knowledge of its complement of leaf miners would be valuable evidence of its history. Of the

Table 1. Species recorded as new to Colonsay and Oronsay

* Additions to Wormell's (1983) list for Rhum, Coll, Canna and Colonsay.

Stigmella salicis Stt.
S. anomalella Goeze
S. nylandriella Tengstr.
 **S. magdalenae* Klim.
S. lapponica Wocke
Opostega salaciella Treit.
Lampronia oehlmanniella Hb.
Heliozela respendela Stt.
Tinea semifulvella Haw.
 **Leucoptera laburnella* Stt. (Scalasaig)
 **Caloptilia betulicola* Her.
 **Phyllonorycter quinqueguttella* Stt. (N. shore of Oronsay)
Glyphipterix schoenicolella Boyd (E. dunes on Oronsay)
Argyresthia goedartella Linn.
A. retinella Zell.
A. bonnetella Linn.
 **A. albistria* Haw.
Yponomenta evonymella Linn.
 **Y. padella* Linn.
 **Paraswammerdamia albicapitella* Sch.
Rhigognostis annulatella Curt.
Phaulernis fulviguttella Zell.
 **Diurnea fagella* D. & S.
Scrobipalpa clintoni Pov. (Oronsay strand)
S. acuminatella Sirc.
Acompsia cinerella Cl.
 **Aethes rubigana* Treit. (Scalasaig)
Eupoecilia angustana Hb.
 **Eana incanana* Steph. (Coille Mhor)
Acleris variegana D. & S.
 **Endothenia quadrimaculana* Haw.
Epinotia immundana F. v R.
E. nemorivaga Tengst.
 **Zeiraphera isertana* Fabr.
Dichrorampha petiverella Linn.
D. montanana Dup.
 **Eudonia pallida* Curt. (Scalasaig)
 **E. crataegella* Hb.
Idaea biselata Hufn.
Xanthorhoe spadicearia D. & S.
X. fluctuata Linn.
 **Chloroclysta concinnata* Steph. (Moorland near Colonsay House)
Thera cognata Thunb.
T. juniperata Linn.
Rheumaptera hastata Linn.
Eupithecia absinthiata/goossensiata
Epione repandaria Hufn.
Clostera pigra Hufn. (Oronsay strand)
Agrotis ipsilon Hufn.
Xestia triangulum Hufn.
Hoplodrina alsines Brahm

new records, that of *Eana incanana*, a bluebell feeder, is a notable addition to the scarcer woodland species of Coille Mhor. In early August the most common moth in the wood was *Alcis jubata* and many were disturbed from tree trunks.

A notable area proved to be the north coast of Oronsay, bordering the Strand, where *Scrobipalpa clintoni* was found on the shore line and *Phyllonorycter quinqueguttella* larvae were present on *Salix repens*. Just east of there, in the damp dune slacks, *Glyphipterix schoenicolella* occurred in the extensive *Schoenus* stands.

The woods and gardens in the centre of the island, with their exotic plants and weedy species, have allowed the establishment of a number of other species. *Leucoptera laburnella* was present there on Laburnum bushes and *Aethes rubigana* was favoured by the burdock plants present as weeds. Other species, such as *Xestia triangulum*, which is apparently greatly outnumbered by *X. ditrapezium* in western Scotland and the Hebrides, are presumably also associated with this rather domesticated area. Also in the centre of the island there are some impressive marshy areas and loch fringes, which must be the habitat of *Eudonia pallida*, and where *Parapoynx stagnata* was abundant.

On the moorland above Colonsay House were "carpet" moths resembling *Chloroclysta concinnata*, but determining the true status of these would require a breeding programme.

Colonsay lies within about 14km of Jura, but this island is predominantly acid moorland and its value as a source of colonists, especially of woodlands, must be limited. The more varied islands of Islay and Mull are both within about 10 - 20 km and the mainland itself is about 30km to the east. Only to the west is there no obvious source of colonisation. Although there may at present be no records of some of Colonsay's moths on the nearby mainland or adjacent islands, this is probably merely because we do not yet have complete records from them. None of the species recorded as new here are obviously outside their normal range, although some are only sparsely recorded in western Scotland.

References

- Boyd, J.M. and Bowes, D.R., 1983. The Natural Environment of the Inner Hebrides. *Proceedings of the Royal Society of Edinburgh* Section B. **83**: 1-648. (Includes: Wormell, P. Lepidoptera in the Inner Hebrides.)
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